

FOREWORD

THE following study was made between the years 1931 and 1935, in a series of sojourns with the Papago, totaling some fifteen months. It is to be considered as a sequel to a previous paper on Social Organization (Underhill, 1939) and uses data furnished by many of the same informants.

The study was made principally on the Sells reservation, the largest of three now occupied by the Papago, with a population (1940) of 5,577. At that time the San Xavier reservation had 513 and Gila Bend 127. Also, some visits were made across the Mexican border, where once there was a large Papago population. At present there is scarcely a village there which can be called exclusively Indian. The only one which holds a yearly Papago ceremony (Quitovaca) draws its performers largely from the American side. In Arizona, on the contrary, the Papago are a segregated group, with many ceremonies intact and others vividly remembered. Much regional difference was found, so that even on the Sells reservation ceremonial variations had to be traced through northern, southern, and western Papago.

Each village or group of related villages was found to have its specialist, usually hereditary, for every ceremony. A few of the more conservative objected to revealing their lore, but most finally consented to speak, always through an interpreter from the local group. Informants and interpreters are numbered for purposes of reference, and the number of each appears in parenthesis in the text following any statement for which he is the special authority.

Songs and ceremonial speeches were recorded in text, with interlinear translation. Here, there appears only the free translation.

tion, made after careful discussion of the archaic words with several informants. At the left of each such item appears a serial number which will indentify it in a future volume of texts.

Some ceremonies, like the rainmaking, are still being widely held. Others, like girl's puberty, have lapsed completely. Notes at the chapter ends give the present status of each but, for consistency, the descriptions are all in the past. This echoes the wording of old ceremonialists who usually preferred to describe the rituals as they flourished at the turn of the century, before reservation days.

A few of the songs and speeches have appeared in a previous volume, *Singing for Power*, University of California Press, Berkeley, California, 1938. They are here reproduced by the kind permission of the University of California Press.

Funds for this study were generously supplied by the Humanities Council of Columbia University. The writer is deeply indebted to Drs. Franz Boas and Ruth Benedict, under whose immediate supervision the work was carried out. The work had the able co-operation of practically the whole teaching staff of the Sells reservation, with much practical help from the superintendent, Mr. T. B. Hall. The true authors of the book, however, are the Papago ceremonialists who painstakingly dictated their rituals in order to make them available for future generations.

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United States Indian Office
Washington, D.C.
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CEREMONIAL PRACTICES

37

The song consists of very few lines, repeated from four to six-⁵³³teen times. The lines themselves may consist almost wholly of standard poetic expressions, usually in contrasted pairs, such as morning-night, east-west, running-standing, rain-cloud, white-black, and far-near. Certain tricks of vocabulary are very noticeable, such as the incessant use of the word *kamhu* (yonder, out of sight). The word has the sonorous quality and poetic implication which recommends it as an introduction, and one song out of ten seems to use it. Almost the same can be said of *mīhk* (far), and the words for wind, cloud, and mountain appear so often that one might accuse the inexperienced singer of feeling that when he has put these into a sentence he has poem enough.

TRANSLATION

A word may be added as to the translation given here, both for ¹²⁸speeches and songs. There has been no effort to use archaic language for artistic effect, but certain Papago constructions lend themselves to expressions in old English. There is a verbal auxiliary in the past which can most accurately be translated by our form "did." "Then did he swiftly go" is correctly Papago in construction and word order. Such semi-obsolete words as "thereon" and "there-with" are also literal translations. Papago would go farther and say "him-on" and "him-with." Though the translation could not follow all these constructions and remain readable, it was thought desirable to suggest them whenever the English would permit.

The style of vocabulary being thus determined, it was carried out wherever choice was possible. An expression indicating approval may be rendered "all right" or "it is well." There seems no special virtue in choosing the modern colloquialism rather than an expression in harmony with the others used.

The word order has also been rendered as accurately as easy ¹²⁸reading permits. A Papago sentence has the verb at the end, with ¹⁹³all the other elements placed before it except the nominal subject. A typical arrangement would be: "Then did he yonder to him-ward swiftly go, that youth." A number of such sentences in English would be tiresome, but it has been thought best to suggest the ar-

128 arrangement as frequently as possible, even though it is not con-
193 sistently maintained.

Many of the five hundred songs collected seem no more than re-
633 arrangements of the beloved words "rain," "wind," and "moun-
424 tain." It is obvious that in a society where dreaming was practically compulsory, many a man must have grasped at some slight alteration in tune or words in order to be able to call a song his own. In fact, dreamers have passionately defended their rights when the writer suggested that some song seemed a repetition of one already transcribed. "Can't you see, it says mountain instead of hill and green instead of red? It's *my* song."

533 Some songs, however, are vignettes of desert life, as clear in contour as a Chinese poem. The brown crickets hopping among the squash vines, the deer drinking where the water drips beside the datura blossoms, and the birds chattering on the ground that the deer have trampled are strikingly chosen details which evoke a whole picture. Some are even humorous, for every phase of the subject must be vivified, even the clumsiness of an inept hunter or the antics of a turtle at courting. Papago ceremonial art, it would seem, found its best expression in words. The scanty, colorless costumes, the background of empty desert or houses like earthen mounds, had beauty only in their stark simplicity. But the very passion of need sharpened songs and oratory to a vividness which is often poetry.

LOCATION AND HISTORY

LOCATION

Pa The Papago are to be found on three reservations in the south-
P2 west corner of Arizona, adjoining Mexico. Their country was under
101 Mexican rule until the Gadsden Purchase of 1853 and, with that
131 of the Gila Pima, it once bore the Spanish name of Pimeria Alta
(Upper Pimeria). All its inhabitants were known as Pimas by the
Spanish and by themselves as o'otam. They consider themselves
one people, though they distinguish River People now called by the
Whites Pimas, and Desert People, called Papago. For convenience
[22] we shall allude to the combined people as Pimans. Their language
is the same, with minor variations, many of them due to the in-
fluence of English on the north and Spanish on the south. Migration
and interchange have been so constant that statements as to habitat
and history must include both groups.

The Pimans were found by the first Spaniards living where they
do now though in a little wider territory. Their stretch of desert,
two hundred miles long by two hundred and fifty wide, lay like a
roughly shaped diamond, with its long axis along the present inter-
national boundary. It was a barren stretch, containing no streams
at all, but it was roughly outlined by water courses: at the north
the Gila, at the south, the little Altar, which loses itself in the sand
before reaching the Gulf of California, at the east, the San Pedro
flowing north to the Gila. At the west, the driest part of Pimeria,
nearly uninhabited, touched the Gulf of California.

Pa The Pimans are the northernmost of an almost unbroken line of
P2 Uto-Aztecan speaking peoples, stretching from the neighborhood
197 of Mexico City along the western edge of the plateau with extensions
into the foothills and the plains beneath. All practised agriculture,
wherever the country permitted and often irrigation also. On the
plateau, at the south, were to be found such people as the Aztecs,
with their intensive agriculture and complex organization; beyond,
in the mountains, the Cora and Huichol, whose agriculture had,
of necessity remained simple but whose ceremonies and handicraft
were most elaborate. Further north came the ruder Cahita and
Tarahumare and, stretching down past them, through Sonora and
Durango, a group of agriculturists and irrigators comprising the
Tepehuane, the Nevome or Lower Pima, the Opata, Tepecano and, at
the north, extending into desert country, our subject, the Upper Pima.

the Spaniards instituted the office of governor and the Americans continued 115
it. Chona's father was the governor of Mesquite Root (kuitatk), an ancient
village now abandoned, and Chona spent her girlhood there under condi-
tions differing very little from those of pre-Spanish days.

The story of her past was her constant preoccupation, and snatches of 115
it were narrated at every opportunity. Most of it was taken through an 159
interpreter, for, though the writer spoke a little Papago and Chona a little 126
Spanish, it seemed desirable that her words should be transcribed exactly.
They were not taken in text but in as accurate a translation as the writer,
engaged in a study of Papago grammar, could work out. The wording,
therefore, expresses Chona's thought as accurately as may be.

The arrangement, however, is the writer's. Chona is ninety years old 124
and her memory works with the fitfulness of age, presenting incidents in 126
repetitious confusion. The only possible system was to write each one sepa-
rately, add to it all the amendments which occurred to her during the years
of our acquaintance, and then to question her patiently about the chronol-
ogy until the correct order was worked out. She repeated each episode so
often, however, that there was finally no question as to their sequence.

But the matter of accuracy in both chronology and wording being 638
settled, there still remain, in presenting an Indian autobiography, impor- 128
tant questions of technique. Indian narrative style involves a repetition
and a dwelling on unimportant details which confuse the White reader and
make it hard for him to follow the story. Motives are never explained and
the writer has found even Indians at a loss to interpret them in the older [152]
myths. Emotional states are summed up in such colorless phrases as "I
liked it," "I did not like it." For one not deeply immersed in the culture,
the real significance escapes.

The writer felt most deeply the objections to distorting Chona's narra- 128
tive. Yet if it had been written down exactly as she herself emitted it, there
would have been immense emphasis on matters strange to her but common-
place to Whites and complete omission of some of the most interesting
phases in her development. Therefore a pattern was followed. While the
essentials of the narratives were retained it is hoped at every point, many
of the repetitions were excised and the reader is warned of this fact just as
he is warned, in the preface to a grammar, that certain phonetic changes
regularly take place.

On the other hand, Chona was not allowed to pass over the crises of
her life with a mere word. While she had no objection to expressing her
emotional states, she took them for granted. But, on being asked, she would
amplify in such vivid phrases as "Fear went through me like a snake."

128 Therefore she was frequently asked, and as a result the story has elaboration and emphasis at some points where she would not have placed them, and it stops short where she would have found repetition comfortable. It is an Indian story told to satisfy Whites rather than Indians.

115 There were reasons other than intimacy and opportunity for choosing
124 Chona as the narrator. She is not the aberrant type which so frequently
562 attracts the attention of the White investigator. She accepted her culture completely, and one reason for choosing her was that she had come into contact with so many of its important phases. As a woman, she could take no active part in the ceremonial life. But her father was a governor and a warrior; her brother and one husband were shamans; her second husband was a song leader and composer. And a Papago woman's history is interesting in itself, because, in this culture, there persists strongly the fear of woman's impurity with all its consequent social adjustments.

115 Chona accepted her status without stress or rancor. She was, however,
562 not the ideal Papago female type, for she was inclined to be independent and executive. In her old age, when such qualities were not taboo, she ruled her whole connection with a competent hand. In childhood she had a minor maladjustment, soon overcome: she started to make songs. Making songs is the Papago achievement *par excellence*, all outward acts being considered merely as a preparation for it. Chona was no poet by nature: she was, in fact, an executive. But she had some urge to accomplish, as the men accomplished, and the proper avenue was song making. So Chona made songs
[679] and saw visions, and had to have her shaman's crystals cut out by a minor
[756] operation.

She submitted, and found compensation in her life of child bearing and hard work. But in old age the urge came on her again, and again there was no outlet but visions. These later visions are pathetic in their lack of originality, and the songs which she assured me she had composed herself were often changed, only by a word or two, from songs which had been well known for years. Many Papago compose in this way, since song making is a *sine qua non* for success in life. None consider it plagiarism, for song making is the spiritual crown conferred on one who has already achieved in the physical world.

Chona, in her way, achieved. She learned a manipulation of sick babies which was much respected. Very possibly she had observed its performance by her first husband who was a shaman, but the Papago pattern did not allow her to recognize this: she had to dream it, and she did. She picked up other bits of practical medicine, and she had a dynamic personality which drew patients to her. In the end she did all that her culture would allow her toward satisfying her desires and she was not unhappy.

INTRODUCTION

123 adults residing in the district during the period of study were able to speak English, and some of these had only slight mastery of it. For this reason, Miss Chesky made considerable effort to understand and speak some Papago. Her knowledge of the language never reached the point where interviews could actually be conducted in that medium, but she understood the gist of conversations sufficiently to furnish some check on interpreters. Furthermore, her halting attempts to speak Papago did much to create friendliness toward her. It was thus possible, without restraint on the part of anyone, to make long visits in homes where no English was spoken. On these visits, some information was picked up by very simple conversation in Papago, and much was observed regarding ordinary village happenings and regarding behavior patterns between the members of a household. Observations made but not understood were discussed later with English-speaking Papagos.

125 With the exception of the Grace Arthur Test, which was given by Mr. Rosen in the summer of 1942, the testing program in the Hickiwan-Gu Vo area was conducted in 1943 by Dr. Joseph and by Mr. and Mrs. Guthrie, Mr. and Mrs. Megivern, and Mrs. Byers, all Indian Service teachers.

ORGANIZATION OF THE MONOGRAPH

● 128 Part I, "People on the Desert," describes Papago society on the Reservation today, with a brief account of Papago geography, history, and prehistory. This part of the study is mainly the work of Rosamond B. Spicer. However, Jane Chesky made contributions to certain chapters; namely, sections of chapter iv which deal with the position of women and children in the society; sections of chapter vi dealing with certain theories of disease and curing, with the fiesta, and with the Magdalena pilgrimage; and sections of chapter vii on the relations of the Papago with other Indians, Mexicans, and traders.

Part II, "Growing Up on the Desert," describes the development of the average Papago child. This part of the study is based on detailed study of the western Hickiwan villages previously named, but comparisons have been drawn from consultation with field workers in other districts so that a more representative picture of the average Papago child's life might be drawn. It is the work of Jane Chesky, supplemented by comparative material on Baboquivari contributed by Rosamond B. Spicer.

Part III, "The Personality of the Papago Child," describes the results of the testing program carried on in the two research areas of the Reservation. This part of the study is the work of Alice Joseph, M.D.

INTRODUCTION

TERMINOLOGY

Certain usages in this study need careful definition.

"East" and "West."—These terms refer to the villages studied in the Baboquivari and the Hickiwan-Gu Vo areas, respectively. The terms are not strictly descriptive from a geographical standpoint, as the reader will see from the map facing page 4. Furthermore, not every village in each of the districts named was studied. But, to avoid clumsy phrases and tiresome repetition, the short terms are used. 128

It should be understood that information in Parts I and II pertains primarily to people and conditions in the villages studied, unless specifically stated to apply to other villages or the Reservation as a whole. Known differences between "eastern" and "western" villages and between them and other villages are indicated. In the main these may said to be differences of degree rather than of kind. Naturally, since the writers of Parts I and II lived in the "East" and the "West," respectively, their work is oriented to the two research areas, but consultation and checking between themselves and with other Papago authorities were carried on often and conscientiously.

"Mexicans."—For the sake of brevity, the term "Mexican" is used in this study to designate both (a) the Spanish-speaking Mexican nationals resident in Mexico and (b) those persons of Mexican birth or ancestry resident in the United States, who are often termed "Spanish-Americans" in the southwestern United States. The relations of the Papago with Mexican nationals (except with their own kinsfolk, the Papago who live south of the border, and with the Yaqui Indians resident in Mexico) are almost identical with their relations with Spanish-Americans in the United States. They use the same word, *chuchkam*, in describing both groups. Hence "Mexicans" is used here to cover both groups, unless specifically noted to the contrary.

"White Western civilization," or "white" is used to indicate Euro-American tradition and culture. "American civilization," or "American" refers specifically to the United States.

[p. xiv is blank]

THE DESERT PEOPLE

619 which belongs to the Uto-Aztecan stock.¹ Among all there was a strong feeling
101 of kinship, although the "Papago" feel themselves different from the "Pima."

161 The Desert People in the United States are officially consolidated into "The
101 Papago Tribe of Arizona." About 5,900 of them live on the Papago Reservation,
657 roughly a sixty-five-mile square lying along the southern border of Arizona
between the Baboquivari Mountains on the east and the Ajo Mountains on the
west, with an irregular line south of the Gila River as its northern boundary
(see Map I). Others live near by on two smaller reservations: about 200 at Gila
Bend to the northwest, and almost 500 at San Xavier to the east. Including a
few members who live off the reservations, Papago now number close to 7,000,
a large tribe which is increasing at the rate of over 1 per cent a year.

● 128 It is the Desert People, specifically those who live on the main Reservation,
who are the subject of this study; they are referred to here as "the Papago" and
their reservation as "the Reservation." Those herein called "the Pima" are the
official "Pima tribe," who live on the Gila River and Salt River reservations to
the north.

361 On the main Papago Reservation the people live on lonely ranches or in scat-
621 tered, sprawling villages, many of which existed when the first Jesuit mission-
ary, Father Kino, came in 1698. The village is the important unit among the
Papago. It always consists of a group of related families, ranging in number
from four or five to fifty or sixty household units, totaling perhaps three
hundred individuals. However, there are only a few large villages: only thirty-
six villages of more than fifty people on the entire Reservation. Sells, the seat of
the government agency, has over one thousand inhabitants, but the number of
white persons and the fact that many of the Papago families attracted there by
government jobs are unrelated make this settlement atypical.

Villages are interrelated through the dialect groups. The original groups
were first described by Father Kino, who thought of them as being virtually
separate tribes (see chap. v). Since his time the various groups have moved to
their present locations and have become officially consolidated into one tribe,
but the divisions are still recognized by the Papago.

197 The dialect groups have recently acquired political significance. In 1936 the
631 Reservation was divided into nine districts, roughly equivalent to the dialect
groups but also determined by administrative and economic considerations (see
Map I). The outlying San Xavier and Gila Bend reservations form two addi-
tional districts. Population in the districts on the main reservation varies from
1,200 in Sells to 250 in Gu Vo, the western districts being most thinly settled.

1. There are over fifty linguistic stocks in use among Indians of the United States and Canada today, some of them as different as English and Chinese (see Clark Wissler, *The American Indian*, pp. 391-400).

Chapter VIII

THE FIRST FOUR YEARS

000 IN THE first of this book we have seen the Papago working and living together in the desert. We know something of their way of life and the changes brought to it by contacts with white culture, a little about the Papago outlook on life, and some of the chief personality traits of this Indian group.

● 128 Now we want to see the Papago as he grows up to be one of the Desert People. This part of the study is a biography, a composite picture of Papago childhood. It is a record of the experiences common to most Papago children, derived from the histories of many of the children studied in both the eastern and the western parts of the Reservation and from the observed behavior of Papago of all ages.

128 This life-story is divided into stages marked by significant changes in the child's behavior toward other persons. These stages correspond roughly to the following age groups: the first four years of life; later childhood (five to ten years); and adolescence (from about eleven to eighteen).

561 These divisions cannot, however, be taken too literally for a number of reasons. For one, during the transition between phases (for example, four to six years and ten to twelve years) the child's behavior is least clearly defined—not necessarily in the case of the individual child but in regard to Papago children as a whole. Also, the Papago are completely unconcerned with chronology. Though there are baptismal records for most children (except in the extreme West) and a small number of birth certificates, even in Baboquivari District few parents have kept personal records or know their children's birthdays. In the western districts most people simply have been assigned birthdays by the census-taker, and they are unaware of even these hypothetical dates. The significant fact for our purposes is that parents are not interested in and have no knowledge of the dates at which their children achieved certain skills, such as walking and talking.

856 Moreover, the Papago have no formalized age grouping. The only rites

561

THE DESERT PEOPLE

561 that define passage from one stage to another—the birth ceremony and the
856 girl's puberty rite—are private occasions which do not serve as announcements but merely as insurance of the well-being of the individual and his family. The terms the Papago use show their indifference to time concepts: the tiny infant is called "just born"; "child," "boy," or "girl" are used from infancy to adolescence, and "girl youth" or "boy youth" between puberty and marriage. In other words, between early infancy and marriage the Papago recognize only two stages: before and after pubescence. However, there is no more radical change in behavior patterns at pubescence than at any other time.

856 This distinction illustrates very well the usual child development pattern of
861 the Papago; training is informal and leisurely, attuned to the child's natural pace and accomplished with little conscious planning. The process is continuous, with few absolute landmarks; one phase blends into and overlaps those preceding and following it. Small wonder that the Papago use biological manifestations to mark the changes.

- 128 Since this study is written for readers who are accustomed to the white pattern of clear age groups and because such classification facilitates comparison with child development elsewhere, the 0-4, 5-10, and 11-18 age groups will be used here. We now turn to the first phase.

BEFORE THE BABY IS BORN

163 Papago children are more widely spaced than among some Indian tribes and white groups of similar economic status. There are a few families in which a child is born every year, but, judging from census records, in most families births occur from eighteen to thirty months apart.¹ Considering the death rate among Papago children, the average is near the lower end of this range. Most of the women seem to prefer not having a child every year because they feel that they cannot adequately care for so many children and will be likely to
[342] lose them. But, as noted in chapter iv, apparently most women take no contra-
846] ceptive measures, and the taboo on intercourse for a month after childbirth no longer prevails.

843 Life goes on much as usual for the expectant mother, and there appears to be little illness in connection with pregnancy. No special considerations are shown her, and the pregnant woman performs all her usual tasks, lest she have a difficult birth. On the other hand, she is not segregated or given extra duties.

Some taboos are still in force for prospective parents. They must stay away from animals that make children sick, and they must not touch animal blood. The father avoids killing rattlesnakes and rabbits, but most men no longer re-

1. This statement is qualified by the unconcern with chronology noted above.

THE DESERT PEOPLE

125 it desirable to establish the following age groups: six to seven, eight to ten, eleven to thirteen, and fourteen to eighteen.¹ However, in the following chapters age and sex differences are noted only when they seem particularly significant.

121 No one is an individual unit moving independently through life. The influences of other people and their reactions to him will, to a greater or smaller degree, determine the course and strength of certain of his own psychological reactions and evoke new psychological equivalents for new situations of social contact.

128 Therefore, what we usually consider as characteristics of a group of people (i.e., those qualities more or less common to all members beyond their distinguishing individualities) will probably not be limited to superficial modes of expression and certain manners of behavior. This study is planned to do more than report a dialect or a particular way of eating or dressing; we have tried to uncover specific attitudes and reactions deeply rooted in the personalities.

Since the interest of this study is in the Papago not only as human beings or as individuals but also as Papago—and indeed the practical problem of the Papago minority as it exists in the state of Arizona today alone would justify such interest—the report of the psychological analysis will be concerned primarily with those attitudes, reactions, and personality traits which seem to belong specifically to the Papago tribe and to distinguish it from other Indian tribes and cultural groups.

1. The same age groups were used for all the tribes studies in the Indian Educational Research Project except the Sioux.

P R E F A C E

Scattered data on the early agriculture and other aspects of the economic life of various Indian groups in the Southwest are available in the literature, but treatises covering the primitive basis of subsistence of specific Indian groups, such as ~~Flint~~ *The Agricultural and Hunting Methods of the Navaho Indians* and Whiting's *Ethnobotany of the Hopi*, are rare. Wilson's *Agriculture of the Hidatsa Indians*, a Plains tribe, must be regarded as the best account of the technique of Indian agriculture yet published. It is our purpose, therefore, to issue within the next few years a series of comprehensive studies, of which this is the first, presenting the early basis of subsistence of the several Indian groups in the Southwest, with special emphasis placed on agriculture.

The material herein presented is based upon field studies made by the authors among the Pima-Papago in the fall of 1938, 1939 and 1940, supplemented by data gleaned from the relevant historical, ethnographical and archaeological literature. The field studies were made among the Pima on the Gila River Indian Reservation, centering at Sacaton, Arizona; the Papago on the Papago Indian Reservation with headquarters at Sells, Arizona; the Papago on the reservation at San Xavier; and a few Papago on the so-called Maricopa Indian Reservation at Maricopa, Arizona.

The method followed in doing the field work was for the authors to work independently, each with his own informants and interpreters, then compare notes at the end of each day.

Obviously, differences in agricultural technique exist in different parts of the Papago and Pima territories. There is always danger of over-formulating procedures, such as the method of planting, and the reader is cautioned against regarding any such operation or aspect of agriculture as stereotyped. It is realized that among both peoples sub-units

● ¹²⁸ exist and that among different villages, and even different individuals, variations occur. The following account of Pima and Papago agriculture and of the general basis of subsistence of these people represents a composite picture drawn from a number of informants variable in background, technical knowledge, ability to impart what they knew etc., and no one of whom would be capable of presenting all the ethnographic information herein contained. A deliberate effort has been made to present as complete a picture as possible of the early basis of Piman subsistence, indicating local or individual departures from the general situation wherever these appeared to be significant or were consistent with the limitations imposed by space.

Fortunately the Pimans, particularly the Papago, are a people among whom primitive methods of agricultural technique and of food gathering are still functional and therefore recoverable. Thus it was not difficult to find old informants, especially Papagos, whose knowledge of the old crops, techniques and procedures is extensive.

¹¹⁵ Following is a list of our main informants and interpreters. Although we have interviewed many additional Pima and Papago informants to obtain data on specific aspects of agriculture, it has not been deemed necessary to list them.

Papago Informants:

Chico Bailey—Piaínemo
Alvina Gerónimo—Big Fields
Imilio Lewis—Emika
José Petero—Siinakya
Bernabé López—San Pedro
San Pablo—Santa Rosa
Santiago Maristo—Kemelik
Matías Hendricks—Vamori
Mariano Domingo—Kohatk
José Santos—San Xavier

Pima Informants:

Manuel Lowe—near Sacaton
Nicolas John—Sweetwater
Lewis Nelson—Casa Blanca
Vanico—near Sacaton
Paul Azule—near Sacaton

Papago Interpreters:

Peter Blaine—Sells
Martín Maristo—Topawa
Joe Raphael—San Xavier
Ralph Gonzales—San Xavier
Rev. Bonaventura Oblasser also
kindly assisted in interpreting
and as a medium of contact.

Pima Interpreters:

Paul Azule—near Sacaton
Leonard Lowe—near Sacaton
Isaac Paul—Sweetwater

PAPAGO NOMINAL STEMS

JUAN DOLORES

EDITED BY J. ALDEN MASON

INTRODUCTION

BY

J. ALDEN MASON

114 The Papago nouns here given have been gathered mainly from
 128 the texts of Juan Dolores written for the University of California
 in the years 1911-1913 and 1918-1919. This considerable body of
 material was typewritten by the editor and all nouns excised from
 the carbon copy, arranged, and compared. To these nouns was then
 added the large number of nominal stems published as a part of the
 author's *Papago Verb Stems*¹ and, to make the list as complete as
 possible, the nouns collected by the editor, in text and grammatical
 notes, in the winter of 1918-1919, were added. The various render-
 ings were then compared, the standardized stems divided into natural
 groupings, and the manuscript typed.

128 The seven general groups of animals, body parts, botanical terms,
 [193] natural phenomena, artifacts and manufactures, personal categories,
 and abstract terms have been observed, and within each the stems
 have been arranged in the phonetic order a, e, i, o, u, m, n, l, s, c, h,
 v, w, b, p, d, t, dj, te, g, k. Words of doubtful form or meaning and
 all *hapax legomena*² have been starred with an initial asterisk and
 words derived from Spanish or other languages put in italics.

104 A brief key to orthography and pronunciation is all that can be
 attempted here. The phonetics of Papago have been described by
 A. L. Kroeber in his explanatory note to the author's abovementioned
 contribution, and the orthographic system there developed has been
 here adopted with slight variations. They also differ in very slight
 degree from those of Tepecano described more fully by the editor.³

¹ Present series, x, 241-263, 1913.

² Tepecano, A Piman Language of Western Mexico, Ann. N. Y. Acad. Sciences, xiv, 1917.

³ [i.e., words cited only once in the texts referred to.

104 The symbol *e* has been used in place of the *ü* written by the author and the *ö* preferred by the editor. This has been done primarily for typographic reasons, but the substitution is not a random one, inasmuch as the *ö* of the Piman group of languages relates to the *e* of the other Sonoran and Uto-Aztekan languages.

114 *l* as an initial sound is found solely in words of Spanish origin.
194 The writer frequently heard and wrote it as *r*.

The question of the sonant stops and affricatives is a most difficult one. As in Tepecano, the difference is very slight and confusion certain. The editor was frequently at fault in his renderings while the author was never fully convinced of the existence of sonant stops. Taught at first to write all as surds, he was never able accurately to distinguish between them. However, the surd stop is always preceded by a voiceless sound, generally either the aspirate *h* or a voiceless vowel, while the sonant stop is as invariably preceded by a voiced sound or a glottal stop. This then is a certain criterion when the determining factors have been correctly noted. Unfortunately this was frequently not the case. The criterion, moreover, was useless in the case of initial stops since, in the author's texts at least, words were written with their phonetic values when isolated. Consequently it has been impossible in many cases to determine whether a given stop is surd or sonant. Only when the testimony was overwhelming—uniform phonetic rendering, or sonant rendering by the editor together with a sonant correspondent in Tepecano—was the author's surd changed to a sonant. In all doubtful cases, the stop has been left written as a surd, though generally the preceding sound is sufficient to identify its nature.

• 128 An effort has been made to give each noun in its simplest form. It will be noted that the orthography frequently differs somewhat from the form given in the author's *Verb Stems*. There the stems were given in the phonetic forms they take when isolated; in this case all changes due to phonetic laws have, as far as possible, been eliminated.

128 The editor must plead guilty to numerous inconsistencies in the
193 preparation of this article. While most of the nouns given are true stems, a few cannot qualify under this title and are given merely because they are important and occur in texts or notes. In this class are words, usually pertaining to artifacts and manufactures, ending in the instrumental suffix *-kuht*, and others ending in the suffixes

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Dolores: Papago Nominal Stems

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-kam or -tam. Occasionally two stems are united to form a noun, 128 ●
and, less frequently, prefixes are found. In all such cases of certain 193
complexity, the integral parts have been separated by hyphens and,
in the case of prefixes, the noun tabulated under the alphabetical
order of its stem. Probably other cases of combination have passed
unnoted. In general however, nouns formed by regular means from
verbs or other parts of speech have not been considered in the present
list.

"Whereas, the Papago Development Program was conceived and written with only a minor consideration of the relationships between the Papago people and their reservation to the rest of Southern Arizona; and

"Whereas, Southern Arizona is one of the fastest growing regions in the nation; and this growth, both economic and in terms of population increase, cannot help but influence the direction in which Papago life will move in the future."

Reliable information is, of course, required in the preparation of any long range areal program. The need for such a program for the Papagos requires no special study. The most casual acquaintance with the reservations discloses the general nature of the depressed economic conditions which have merely been documented and measured in this report.

A great many individuals have assisted in gathering the material upon which this report is based. Primary recognition must be given to Dr. Robert A. Heckenberg who, as assistant director of the Bureau of Ethnic Research, was in charge of the project which produced our Papago Population Register. His chief assistants were Frank DeMerritt, Charles Cook, William S. King, Ella Rumley and Beverly Solheim. Richard B. Woodbury and Nathalie F.S. Woodbury collected most of the material on reservation farming and stock raising. Harland Padfield both conceived and executed the study which has provided the data for our analysis of Papago employment on Pima County farms. Richard Jones made the study of Papago welfare and, using some material previously collected by Delmos Jones, gathered and wrote the material for the section on Papago reservation settlements. Charles Hoffman and Peter Hemingway secured the data on Papago reservation wage workers as well as some other information, including additional data on reservation agriculture. Peter Hemingway also performed the remarkable feat of sorting the many thousands of I.B.M. cards to produce the data for our employment tables within three weeks of the time he first saw an I.B.M. machine. Maps were prepared by Frances Benmayer and Richard Woodbury. Last minute editing, correcting, tabulating and trouble shooting was the very competent hands of Patricia Anderson. The

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Educational and health programs are, of course, basic. Other programs for the development of human and natural resources on the reservation have received almost equal attention from the Papago Tribal Council and the Bureau of Indian Affairs. These include the development of better roads and communication services, employment services, welfare and social services, economic development programs, and many others.

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The chapters that follow will treat in detail the nature of resources development on the reservation, and will describe the nature of the Papago population, its economic position, and its manpower resources. The information thus provided, it is hoped, will assist everyone concerned, and most particularly the Papago themselves, in planning for the future.

members of a distinctive group -- in this case the Papago -- and, except for its non-legal status, amounts to a tribal roll. Although of potential value to tribal and federal administrators, the Papago population register is primarily a research tool. It is a "universe" of individuals who are the descendants of members of the Papago tribe in pre-reservation days. It is not confined, therefore, to the present residents of the Papago reservations, but includes identifiable Papagos wherever they may be living. A great deal of information can be secured from the register as it now stands, and changes in the register which will take place as it is maintained through time will provide additional data for analysis. Of even greater importance will be its use as a total population record from which samples may be drawn for a wide variety of social, economic, and health studies. It was, of course, an interest in studies of Indian health that led the National Cancer Institute to support the preparation of a Papago population register.

Methods and techniques used in the preparation of the register, together with full reports on the data secured, have been and will be published by Dr. Robert A. Hackenberg (1961). The problem of the reliability of the data, however, should be mentioned here.

No test has been conducted to determine the extent of over enumeration, under enumeration, or false enumeration. This will be done in the near future. Field

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work was pursued until the enumeration of new people became so infrequent as to not justify additional expenditures.

Records were searched until new data became so scanty or so difficult to handle, that additional work could not be justified.

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Because we were seeking to secure data on all living Papagos, no matter where they lived, we could not use the relatively simple method of house-to-house enumeration perfected by the United States Census Office. We were forced, instead, to identify individuals in a kinship context and to interview informants to secure names, whereabouts, and other facts pertaining to members of kinship groups.

For this reason, and because we could not rely upon name, date of birth, sex and residence as fully reliable identifying criteria, our interviews were long, tedious and

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complicated. Reliability, we know, diminished in our reservation interview material as a direct function of the number of years an individual had been gone from the reservation. Data is weakest for Papagos resident outside of Arizona. Through the cooperation of the Arizona State Office of Vital Statistics, we were able to process Papago birth and death certificates originating in Arizona. We could not secure such information from other states where Papagos are not identified except as "Indian".

Data from records was available for only about two thirds of the individuals enumerated. Such data as kinship, present residence, village of origin, employment, and the educational level of adults, was secured entirely from field interviews.

A census defines the individuals to be enumerated in terms of their geographical location. A population register defines individuals on the basis of their membership in a specific group. One of our first tasks, therefore, was to define a Papago. The definition used by Dr. Hackenberg (1961) is given below. It can be made operational because we have records of the individual builders of dwellings on the three Papago reservations*, and because we have lineage data which give us the network of Papago kin ties.

1. A person will be considered a Papago Indian if he constructed a house within the limits of the Papago Reservations (Sells, San Xavier and Gila Bend), unless he fails to meet the terms of #3 below.
2. A person will be considered a Papago Indian if he is either a lineal or collateral relative of such a housebuilder unless he fails to meet the terms of #3 below.

* Papagos do not live on the Gila Bend Reservation. Papagos living adjacent to the Reservation, however, are traditionally considered "reservation Papagos".

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3. No person will be considered a Papago Indian if he did not have at least one grand-parent considered to be a full-blood Papago Indian by other Indians in his community.

The strict limits of this definition, however, have not been adhered to in this report. For total population figures we are counting all individuals of any degree of Papago ancestry, and we are counting individuals who, as yet, have not been linked by kinship to reservation house-builders. In Chapter IV we shall limit our discussion to a somewhat smaller group of Papagos to be defined as the "administrative population".

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The total living Papago population, according to our count, is 11,775; 5,816 male and 5,959 female. As everyone has long suspected, about half of the Papagos live in non-reservation communities, mostly in Arizona. The exact percentage is 47% but we have every reason to believe that almost all of the individuals for whom we have no residence are living off reservations. By adding this group of 531 individuals to the off reservation population, the percentage climbs to 49%.

The total living Papago population, by sex and residence, is as follows:

Table 4. Residence of the Total Papago Population by Sex.

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<u>Residence</u>	<u>Total</u>	<u>Percent</u>	<u>Male</u>	<u>Female</u>
On Papago Reservations	4,794	43%	2,396	2,398
On Other Reservations	1,201	11%	609	591
Off Reservation	5,249	47%	2,540	2,710
Total	11,244		5,545	5,699
Unknown Residence	531		271	260
Total, Irrespective of Residence	11,775		5,816	5,959

We have not, of course, enumerated all living Papago Indians and we will not be able to make an estimate of under enumeration until a test is made. It is our guess that our error is in the neighborhood of 5%. Much more difficult will be an attempt to estimate an error of over enumeration which traces to the difficulty of securing records of deceased Indians thus causing us to carry as living many individuals who are deceased. This could cancel out the under enumeration mentioned above.

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The count is for the year 1959. A conservative estimate of annual population increase would be two percent. On this basis we estimate that there are now 12,745 living individuals of some degree of Papago ancestry.

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The distribution of the 4,794 individual Papagos whose usual home is on the Sells, San Xavier, and Gila Bend Reservations is as follows:

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Table 7. Racial Composition of the
Total Papago Population by Age and Residence

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ON RESERVATION						OFF RESERVATION					
Age Group	Total	Full Blood		Mixed Blood		Total	Full Blood		Mixed Blood		
		Number	%	Number	%		Number	%	Number	%	
Under 5	569	479	84	90	16	1004	518	52	486	48	
5 to 9	631	534	85	97	15	916	493	54	423	46	
10 to 14	578	517	89	61	11	737	410	56	327	44	
15 to 19	437	399	91	38	9	691	396	57	295	43	
20 to 24	348	329	95	19	5	613	410	67	203	33	
25 to 34	585	555	95	30	5	989	733	74	256	26	
35 to 44	493	471	96	22	4	642	529	82	113	18	
45 to 54	445	429	96	16	4	427	334	78	93	22	
55 to 64	302	295	98	7	2	190	166	87	24	13	
65 & over	343	340	99	3	1	106	98	92	8	8	
Total	4794	4408	92	386	8	6453	4171	65	2282	35	
Age not Known	63	60		3		138	84		54		

Residence. As was noted above, 54% of all Papagos
of known residence usually make their home on the three
Papago reservations or on other Arizona reservations. The
count, however, must be taken with some caution since our
informants could not be expected to give uniform answers to
the question respecting "usual present residence". The
majority of reservation residents move off the reservation

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162 for widely varying lengths of time so that, in many cases,
167 it would be difficult to say whether the "usual" residence
● 128 was off the reservation or on the reservation. Assigning
residence on the basis of the location of a family at the
time of our interviews would have resulted in even more
misleading figures since the number counted, as in the
case of the United States census, would depend upon the
season of the year when the interviews took place.

[561] It is, of course, quite risky to interpret the
statistics on residence by age and sex. No doubt a great
many factors enter. Adults in the age bracket 20 to 44 are
more apt to be living off the reservation than individuals
in other age groups. This could result from two factors:
Younger adults of this generation are more inclined to seek
work in off-reservation communities, and older adults of
this generation are inclined to return to the reservation as
they grow older. Among children, the small differences in
residence are probably traceable to the Papago desire to
place school age children with relatives on the reservation
when an off-reservation move is made.

Differences in residence by sex have not been
tabulated for this report and are too small to have any mean-
ing by age groups. Adult men and women move off the reserva-
tions in about equal numbers and it must be concluded that
married couples, on the whole, move together when a move is
made. The number of women exceeds the number of men in the

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age bracket 20 to 44 by about two percent and the number of women in the same age bracket, living on the reservation, exceeds the number of men by about the same proportion.

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Origin. In order to secure some measure of Papago population mobility, an attempt was made to secure the place of birth or, for older people, the place in which they lived as children. For our total population of 11,775 we have data on age and place of origin for 10,795. The comparable figure for known age and residence is 11,043. Whereas 46% of people with known residence live off the reservations, only 24% of people with known origin originated off the reservation. The shift toward increasing numbers of Papagos with off-reservation origin occurs rather evenly from among the oldest people, with seven percent originating off the reservation to the youngest people with 44% originating off the reservation. Another way of indicating the same trend is to say that 16% of Papagos over the age of 65 live off the reservations and 7% originated there, whereas 53% of Papagos under the age of five live off the reservations and 44% originated there. In between, 53% of Papagos between ages 20 and 24 live off the reservations and 18% originated there. [178]

cattle in the Schuk Toak and Hickiwan districts. Other districts, on the whole, are running far fewer numbers of livestock than in 1914. A slight decrease is shown for the number of cattle in the Baboquivari and Chukut Kuk districts between 1914 and 1962 where cattle growers now own about 29 percent of all cattle on the reservation (See Map 7). It will be recalled that growers in these two districts held about 45 percent of all reservation cattle in 1937.

In attempting to summarize the present extent and importance of stock raising on the Papago Reservation, more detailed data are available than for the past, but an accurate count of the numbers of cattle and horses on the reservation is still not available. However, increased cooperation of tribal leaders and the establishment of cattle associations (in San Xavier, Pisinimo, Hickiwan, Gu Achi, Sif Oidak, and Baboquivari districts) is making it possible to obtain increasingly dependable records.

The 1962 record of grazing units, and the "authorized carrying capacity" of the main reservation are shown in Table 13. In regard to capacity of the range, it should be pointed out that this was established in 1944 on the basis of work which was conducted some years earlier.

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Table 13. The Distribution of Stock Units
on the Main Reservation in 1962
Compared with the Estimated Carrying Capacity

<u>District</u>	<u>Stock Unit Capacity</u>	<u>Stock Units</u>	<u>Cattle</u>	<u>Horses</u>
Baboquivari	1,780	2,261	1,639	498
Chukut Kuk	1,064	2,440*	1,590	680
Gu Achi	1,000	1,532*	1,000	426
Gu Vo	469	1,085*	610	380
Hickiwan	939	2,062*	1,000	830
Pisinimo	1,003	1,980	1,470	408
Schuk Toak	2,102	1,799*	900	560
Sells	1,067	2,022*	1,210	630
Sif Oidak	880	861	464	318
Totals	10,304	16,070	10,082	4,770

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[128] Robert Roether, one of the major cattle buyers on the reservation, is of the opinion that the above estimates are too low for cattle and too high for horses.

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422 Fully as important as the number of cattle and horses grazed, is their ownership. All cattle on the reservation are owned by Indians and, except for 200 head in a tribal herd, ownership is by individuals and families. No [217] actual records are kept of individual holdings, although the tribal office keeps a record of sales by individuals. The Bureau of Indian Affairs now estimates that at least seven families have from 200 to 600 head of cattle each, that about ten families have 100 to 150 head, and that most families have about ten head or less. The number of individuals and

* Because no livestock count figures are available, these numbers are estimated.

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Table 14. The Papago Administrative Population by Sex and Residence, 1959.

<u>Residence</u>	<u>Total</u>	<u>Percent</u>	<u>Male</u>	<u>Female</u>
On Papago Reservations	4,803	49.68%	2,405	2,398
In Non-Reservation Communities	4,844	50.31%	2,369	2,495
Total	9,647		4,774	4,893
Unknown Residence	328	3.18%	271	257
Total Irrespective of Residence	10,195		5,045	5,150

The administrative population is almost equally divided between reservation residence and off reservation residence with 49.7% living on the reservation, and 50.3% off. The 328 Papagos without known residence are not included in these calculations. It is necessary to repeat that we have classified individuals according to "usual" residence and that this designation, in many cases, was a subjective judgement on the part of our informants.

Nonoverlapping Reservations. The Papago labor force differs from the non-Indian labor force in two principal respects. The Papagos have a high percentage of individuals who are multi-employed, i.e., their income in any given year is derived from a wide variety of combinations of employment. The other difference is that the work force has a high percentage of seasonal and temporary workers, the majority of whom must be described as "underemployed."

In the tabulations below we have assigned multi-employed individuals to the type of employment in which they earned the largest share of their income during the 12 months period preceding our interview. Where multi-employment income is about equally divided individuals are designated as having "mixed" employment. Most multi-employed individuals are engaged in stock raising and

small scale farming on the reservation, in unskilled agricultural employment off the reservation, and in unskilled non-agricultural work.

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Except for seasonal and temporary agricultural workers off the reservation it was not possible to secure reliable information on whether or not an individual had worked on a temporary or permanent basis. The tables, therefore, obscure the extent of the Papago work force which is temporarily employed or under-employed. Since this is an important matter in any analysis of the Papago labor force, estimates of the numbers of seasonal and temporary workers will be provided after the tables are analyzed.

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We are reproducing below a sample collection of individual employment records to illustrate some of the problems encountered in coding and tabulation.

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Case No. 1. Male. Born in 1916. Abandoned attempt to farm on reservation some years ago. Had no livestock. Formerly worked at temporary jobs in Tucson but maintained home on the reservation. Has lived in Tucson during the past 12 months and works at temporary labor jobs and as seasonal agricultural worker.

Case No. 2. Male. Born in 1911. Has reservation farm formerly worked by his father. Farm now abandoned but he still runs cattle, about 11 head. Worked for CCC in mid-1930's, later picked cotton, then worked many years in Ajo. In recent years he had a permanent job on farm near Gila Bend. During the past 12 months he has held a permanent farm job near Buckeye: irrigating, picking, chopping, tractor driving.

Case No. 3. Male. Born in 1936. Has no farm land but owns a few head of cattle. For a number of years lived on the reservation and worked as seasonal farm hand off the reservation. Left the reservation in 1956. During the past 12 months he has had permanent job as agricultural laborer around Eloy.

Case No. 4. Male. Born in 1891. Has reservation farm, no cattle. Worked most of the time off the reservation at many jobs and in many places when he was younger. In recent years has left the reservation only to pick cotton. During past 12 months has helped with work on family farm, spent a short time picking cotton off the reservation. County provides old age assistance.

Case No. 5. Male. Born in 1932. Has lived off the reservation for a number of years. Has no farm and no cattle. Spent several years working for a Tucson nursery. During past 12 months has had steady work at the Ajo mines.

Case No. 6. Male. Born in 1913. Worked for the Bureau of Indian Affairs for many years. Moved to California two years ago. During past 12 months has been employed as a plumber in California.

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464 Case No. 7. Male. Born in 1937. Has no farm land. Owns no cattle. Lives on reservation. No work experience. During past 12 months has been unemployed, living with parents.

Case No. 8. Female. Born in 1927. Father had fields, no longer used. No cattle. Worked about three months each year picking cotton, formerly received Aid to Dependent Children to take care of brothers and sisters. Now all work as cotton pickers. During past 12 months spent nine months unemployed on reservation, three months picking cotton off reservation.

Case No. 9. Female. Born in 1937. Joined WAC after leaving school. Married and living in Texas last 12 months.

Case No. 10. Female. Born in 1903. Grew up on reservation farm, father had livestock. Moved to Tucson after divorce and worked as cleaning woman and as cotton picker. During past 12 months has had steady common labor work for Tucson institution.

Case No. 11. Female. Born in 1935. Family had no fields, no cattle. Left Reservation in 1942. Attended school in Tucson and Phoenix. During last 12 months has been a University student.

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128 Table 17 establishes the size of the Papago labor force and compares this with the group outside the labor force. Contrary to usual practice we have placed the unemployed outside the labor force since we listed as "unemployed" only those people who had little or no income during the twelve months period preceding our interview. In the vast majority of cases they have either taken themselves out of the labor force or are in fact unemployable. Individuals with unearned [437] income are usually also unemployed. The relatively small sums of money earned from basket making, wood chopping, and from the sale of a few head of livestock have been disregarded in our analysis. Individuals with such incomes of course, are to be found inside and outside the labor force.

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434 Agriculture on the reservation is predominantly a matter of self-employment and only a few families (variously estimated at from 20 to 30) gain their entire living from reservation farming and stock raising. The remaining families -- approximately 220 -- supplement their income through seasonal or temporary wage work. These are the individuals whose principal income is from reservation agriculture. Another group live on the reservation, have small farms or livestock,

but earn their principal income from off reservation wage work. A third group of small cattle owners live permanently off the reservation and leave their cattle in the care of relatives or employ someone to look after them.

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Table 17. Papage Administrative Population.
Labor Force Compared With Those Outside the Labor Force. Individuals
19 years and Over, 1959.

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	Total	%	MALE		FEMALE	
			Number	%	Number	%
LABOR FORCE	2,533**	46.7	1,792	66.6	743	27.1
Agricultural	1,409	25.9	1,104	41.0	305	11.1
Non-Agricultural	1,126	20.7	688	25.6	438	16.0
OUTSIDE THE LABOR FORCE	1,905	35.1	407	15.1	1,498	54.7
Housewives	1,094	20.1	-	0.0	1,094*	40.0
Unearned Income	390	7.2	184	6.8	206	7.5
Unemployed	254	4.7	123	4.6	131	4.8
Students	167	3.1	100	3.7	67	2.4
EMPLOYMENT UNKNOWN	990	18.2	493	18.3	497	18.2
Total Population, 19 Years and Over	5,430	-	2,692	-	2,738	-

* An unknown number of housewives earn some income from seasonal farm work.

** An additional 47 men and two women were in the armed forces.

The 990 individuals for whom we have no data on employment are distributed by residence as follows: On reservation, 270; off the reservations in Arizona, 248; outside Arizona, 149; unknown residence, 323.

A more detailed breakdown of the labor force by type of employment and place of employment is given in Table 18², which provides most of the facts upon which an analysis of Papage manpower resources must be based. The table attempts to do three things: separate the labor force by place of employment, by agricultural and non-agricultural employment, and by level of skill.

²[See table on p. 102 -- Analysis]

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463 (1) On reservation, 461 (18.2%), on and off reservation, 335 (13.2%), and off reservation, 1,739 (68.6%).
- (2) Agricultural employment, 1,409 (55.6%), non-agricultural employment, 1,015 (40.0%), and mixed employment, 111 (4.4%).
- (3) Skilled and semi-skilled workers, 248* (10.0%), and unskilled 2,287 (90.0%).

As was noted above, (Table 16, Page 94) about one-half of the Papagos in our records for whom we have residence data make their usual home on the reservation. The data above show that 18% of the labor force earn their principal income from on-reservation agriculture and wage work and an additional 13% earn their principal income from both on and off reservation employment. The remaining group (close to 20%) usually live on the reservation but earn their principal income off the reservation.

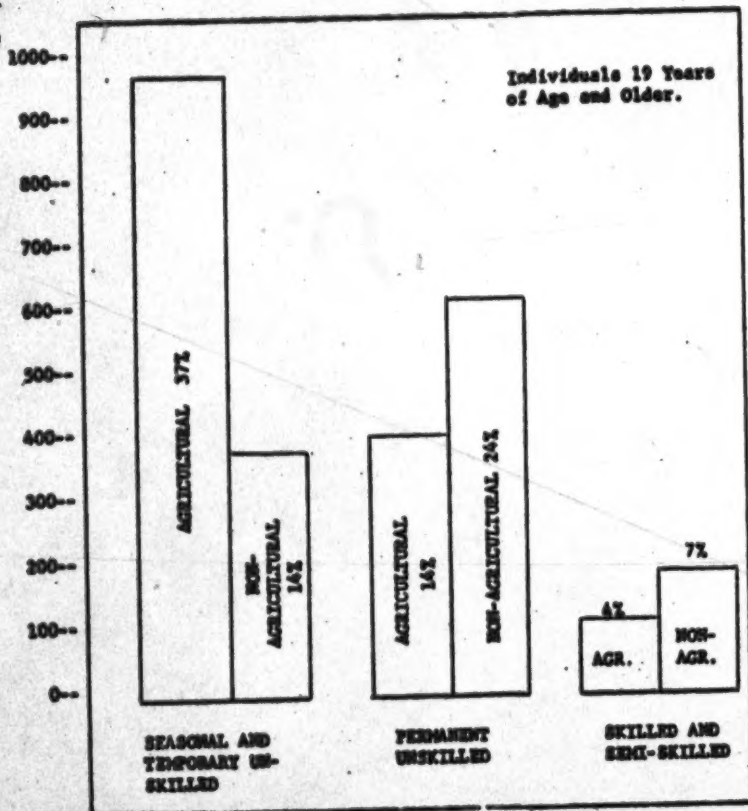
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128 We could not make a satisfactory distinction between the skilled and semi-skilled workers. In addition, we have almost surely placed some semi-skilled workers in our unskilled categories. Most of our information is from neighbors or relatives of the people involved who know that a person was employed by a construction firm or in an aircraft factory, for example, but had no knowledge of the type of work performed. In other cases, individuals were variously employed at skilled and semi-skilled work and other individuals were variously employed at semi-skilled and unskilled work. Informants gave us, in most cases, complete data on these multi-employed individuals but there is still a subjective element in both the information and the coding.

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463 Approximately ten percent of the Papago labor force is engaged in skilled and semi-skilled employment. These are the farm equipment operators,

[Text continues on p. 103]

*An estimated 30 individuals engaged in reservation stock raising and irrigated farming should perhaps be counted as semi-skilled or skilled. We did not make the distinction at the time and so the table shows a total of 259 unskilled workers in this category.

Chart 3. TYPES OF PAPAGO EMPLOYMENT *



[128] * Data for part of this chart are estimates. We have estimated a total of 30 skilled and semi-skilled agricultural workers on the reservation and a total of 351 temporary non-agricultural workers as follows: 111 who have mixed employment and 240 who are considered temporary in our domestic and service category.

Table 18. Papago Administrative Population Labor Force
by Place and Type of Employment. Individuals
19 Years of Age and Over, 1959.

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Type and Place of Employment	Total	MALE		FEMALE		
		%	Number	%	Number	
ON RESERVATION						
Agricultural	239	10.2	238	14.4	10	4.0
Non-Agricultural						
Skilled & Semi-Skilled	102	4.0	51	2.8	51	6.9
Unskilled	66	2.6	49	2.7	17	2.3
Mixed Employ. Unskilled	34	1.3	30	1.7	40	4.0
ON AND OFF RESERVATION						
Agricultural Unskilled	294	11.6	283	15.8	11	1.5
Mixed Employ. Unskilled	41	1.6	32	1.8	9	1.2
OFF RESERVATION						
Agricultural	856	33.8	563	31.4	293	39.4
Skilled Permanent	69	2.7	69	3.9	0	0.0
Unskilled Permanent	365	14.4	360	20.1	5	4.0
Unskilled Seasonal	422	16.6	134	7.5	288	38.8
Non-Agricultural	847	33.4	497	27.7	350	47.1
Skilled and Semi-Skilled	77	3.0	55	3.1	22	3.0
Clerical	16	4.0	7	4.0	9	1.2
Manufacturing	13	4.0	10	4.0	3	4.0
Construction	13	4.0	13	4.0	0	0.0
Other	35	1.4	23	1.4	10	1.3
Unskilled	770	30.4	442	24.7	328	44.1
Manufacturing	57	2.2	49	2.7	8	1.1
Mining	166	6.5	166	9.3	0	0.0
Construction	52	20.3	52	2.9	0	0.0
Domestic-Service	483	19.1	165	9.2	318	42.8
Other	12	4.0	10	4.0	2	4.0
Mixed Employ. Unskilled	36	1.4	29	1.6	7	4.0
TOTAL LABOR FORCE	2535	- -	1792	70.7	743	29.3

* Married women living on the reservation were reported as "housewives" by our informants. We did not secure information on the number who own cattle or who must have accompanied their husbands off the reservation and participated with them in seasonal farmwork, especially cotton picking.

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The author's summary of findings will be found in Table 24 where he

analyses his sample in terms of Papago man hours of farm work compared with other workers; in Table 23 where man hours are given in percentages; and in Table 26 where earnings, calculated for the sample, are projected to the total amounts earned by all farm workers in Pima County.

An interesting distinction is made between temporary farm work and seasonal farm work. This was possible because farmers keep their own records on temporary employees who are hired for many types of jobs during the year. Seasonal workers, on the other hand, are hired by labor contractors (crew leaders) to take care of peak periods of farm labor demand.

Table 24. Number of Workers, Man-Hours, and Earnings by Category of Work and Ethnic Affiliation from a Sample of Pima County Farms.

	Work Categories	Non-Indian	Papago Only	Other Indian	All Workers
		Amount	Amount	Amount	Amount
Direct Permanent full time	No. workers*	164	41	8	213
	Total man-hrs.	492,000	107,004	20,880	619,884
	Total wages	\$531,040	\$121,764	\$23,760	\$696,564
Direct Temporary part time	No. workers*	64	227	9	300
	Total man-hrs.	46,126	111,530	7,200	164,856
	Total wages	\$ 34,594	\$ 83,647	\$ 3,400	\$123,641
Indirect crew lead- ers' crews	No. workers*	261	146	158	565
	Total man-hrs.	133,377	116,220	89,100	338,697
	Total wages	\$ 86,695	\$ 75,543	\$57,915	\$220,153
All Work Activities	No. workers*	489	414	175	1,078
	Total man-hrs.	671,503	334,754	117,180	1,123,437
	Total wages	\$672,329	\$280,954	\$87,075	\$1,040,358

*These worker figures do not represent discrete units, except in one category-- "Direct Permanent." For the other two categories they represent contacts with actual persons, who may or may not have been recalled by name, which were recorded primarily for the purpose of facilitating the informants' and investigators' computation of man-hours which do represent discrete units.

[P.113]

162
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191

the process of job upgrading which has moved other ethnic groups from seasonal farm work to temporary and permanent farm work to urban industrial employment.

Papago Welfare Programs. There is little or no evidence that Papago Indians have taken undue advantage of welfare programs. On the contrary, there is much evidence that state and federal welfare payments make the difference between complete and painful poverty and a bearable standard of living for many reservation families. This last statement holds particularly true for the old people--close to 60% of all welfare payments go to individuals over 65--who are especially vulnerable under modern conditions.

To learn more about this problem, and its place in reservation family economies, Mr. Richard Jones, graduate research assistant in the Bureau of Ethnic Research, was assigned the task of gathering and analysing necessary data. His work was thorough, covering all phases of welfare administration, welfare costs, and the effect of welfare on Indian families. A summary of his findings is given below.

Information gathered from the Indians themselves very obviously gives an undercount of welfare cases. We report a total of 390 individuals (on and off reservation) who received unearned income in 1959. The official number of cases, reported by Jones for reservation residents alone for 1959 was 448. We report a total of 206 individuals over the age of 65 receiving unearned income while Jones reports 266 cases of Old Age Assistance (59%).

It is not likely that Papagos would deliberately withhold information on welfare. The difference is probably to be found in the welfare cases among the 990 on whom we have no employment data, and in the reporting of individuals receiving welfare as "unemployed". In any event, we were forced to depend upon informants since welfare information, which identifies the recipient, is confidential and so not available to us.

162 as a basis for comparison, ADC cases occur in the ratio 1 to 6, OAA cases occur
 659 in the ratio 1 to 7 and Aid to the Blind cases occur in the ratio 1 to 10.
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511 The data given above reveal quite clearly the "vulnerable" situation
 659 of most Papago families and the depressed economic conditions on the reservations.
 829 The welfare picture, however, is not quite as bad as it appears to be. Indians
 look upon their reservations as a place of security and support--not only in terms
 of the assistance rendered through federal agencies, but also the security and
 support that can be expected from kinmen and neighbors in an Indian community.

[162] Indians in trouble return to the reservations and this is undoubtedly the reason
 why Jonas found 465 individuals receiving welfare payments on the reservations in
 1959 and we found only 32 such cases among Papagos living off the reservations.

● 128 Employment and Income on the Papago Reservations. Information on resi-
 162
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dence and place of employment as given in this report indicates how difficult it
 would be to study a "reservation population" apart from a "tribal population."

It has been shown that family movement on and off the reservations is a constant
 process and that the annual earnings of 350 adults, at the very least, are from
 sources both on and off the reservation. Another group of about 450 adults (not
 counting the unemployed and housewives) are recorded as having their "usual" home
 on the reservations but live on income from temporary and seasonal wage work on
 the outside.

128 Patterns of Papago employment and the many and varied sources of income
 434 pose major problems in any attempt to learn the sum of Papago earnings family by
 family. Even in a sample survey, where the employment and earnings of a small
 number of families could be studied intensively, the findings would be less than
 precise for the hundreds of families who are multi-employed, irregularly employed,

and receive income from many sources. Records, of course, are not kept and Papago memory of such activities is vague.

There are three sources of income for reservation families where the numbers of individuals involved and the amounts received can be calculated with some degree of reliability: (1) reservation farming and stock raising (2) reservation wage work and (3) unearned income. For the other three principal categories (4) non-agricultural self employment (wood chopping, home crafts, etc.) (5) wage work on and off the reservations and (6) wage work off the reservations, we know the approximate numbers of adults involved, the approximate amount of hourly earnings, but we know nothing with respect to the numbers of hours of employment during the year.

Gross Papago family income from irrigated farming and stock raising on the main reservation and at San Xavier has been estimated at \$754,152 (see Chapter XII). To this must be added the value of subsistence crops grown by Papagos on flood water farms. The sum has been very generously estimated at \$5,000.

No one has made a study of the cost of growing crops or raising livestock on the reservations. The major cost, however, is labor which may be counted as income. Other costs are probably in the neighborhood of \$100,000 which gives us an estimate of about \$650,000 as the annual Papago family earnings from reservation agriculture.

Reservation income from wage work has been calculated with fair precision for fiscal year 1963. The total is \$809,264 (see Table 26).

Income from welfare (see Table 27) for fiscal year 1962 is estimated at \$473,796. The total for the first three categories of income is as follows:

- | | |
|--|-----------|
| 1. Reservation farming and stock raising | \$650,000 |
| 2. Reservation wage work | 809,264 |
| 3. Welfare income | 473,796 |

Total	\$1,933,060
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By referring to Table 18 (page 102) the individuals who received income from these sources in 1959 may be identified by categories. It may be assumed that the numbers of individuals involved, as the amount of income, from farming, and stock raising have remained about the same. The number of permanent and temporary wage workers has gone up from 202 to 249 and the number of welfare recipients has increased from 463 to about 330.

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The numbers of individuals involved in the above categories in 1962 are thus: reservation farming and stock raising 239, reservation wage work 249 and welfare income 330.

We do not know the amount of agricultural income received by the 239 adults whose principal income was from this source since large numbers of cattle are owned by Papagos who work off the reservation. Neither do we know the amount earned by these 239 individuals from seasonal and temporary wage work. Perhaps the two about balance each other. Taking this as our assumption we have the following result.

Average annual income of adults engaged in stock raising, farming, and some temporary wage work is calculated at \$2309 (239/\$650,000). Average annual income of all reservation wage workers is \$3230 (249/\$809,264). Average annual income of "permanent" reservation wage workers is \$3742 (181/\$677,471). Average annual income of welfare recipients (individuals receiving payment and not including dependents) is \$861 (330/\$473,796).

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We have thus accounted for 1038 of the 2396 individuals 19 years of age and older who make their usual home on the three Papago reservations. The remaining 1358 are distributed as follows: 735 are housewives or unemployed, 335 are part time farmers and stock raisers on the reservation and part time wage workers off the reservations and 468 secure all their income from seasonal and temporary wage work off the reservations. We know what these people do, but we are unable to calculate their income since there is no way of determining the average number of days or weeks they are actually employed during the year.

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463[128]
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I wish to emphasize that the STATEMENTS IN THIS REPORT ARE PURELY MY OWN, and in no way reflect opinions of the sponsors of the research on which they are based. This paper was written as a report to the Indian Bureau. Presumably it will be used by Bureau administrators to form judgements and policy, but it in no way represents their present opinions.

One word should be added about footnotes. There seem to be many in this report. They may generally be ignored, since they are documentary citations. Whenever possible, a text statement has been backed with a footnote denoting the source on which the statement is based, so administrators or scientists reading this paper critically may judge for themselves the probability of accuracy.

H. F. D.

Tucson, Arizona
June, 1951

Appendix 1: Machines and Men

• 128

To complete this report, it was necessary to know how many cotton pickers were employed in Pima and Pinal counties in 1950. Since it was impossible to count every picker while making this survey-study, this total had to be estimated, and several computations entered into the final result. They are felt to be of sufficient interest to be presented in this Appendix.

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Machines: In July of 1950 Elaine Madden, itinerant assistant county agent studying mechanical cotton harvesting predicted that 20% of the Pinal county cotton crop would be harvested by machinery. He based his estimate on the 75 picking machines then in the county plus 15 on order, working in second and third pickings.¹ Mr. Madden is apparently a very wise man, for 20% of the crop seems to be just about the amount machine-picked in Pinal county.

Toward the height of machine-picking,² from 100 to 125 machines were operating in the county. Probably 100 of them put in a full season's work, which amounted to about 400 bales per machine under perfect weather conditions with full efficiency.³ Those 100 picking machines harvested approximately 40,000 bales of cotton, then, which is some 20% of the county total. (By the end of 1950, 193,433 bales of cotton had been ginned in Pinal county.⁴ By that time the harvest was 95% complete.⁵ The completed harvest reached the neighborhood of 205,614 bales. 40,000 machine-picked bales are 19.6% of this total.)

In Pima county 26,657 bales of cotton were ginned.⁶ On 35 farms studied in the county, comprising 70% of the total cotton acreage, 5 picking machines were found in operation. There were probably 7 machines in the county, therefore, which could have harvested about 2,800 bales. This is 10½% of the total bales ginned;

¹Arizona Farmer, July 22, 1950.

²Casa Grande Dispatch, Dec. 14, 1950.

³Arizona Farmer, Jan. 6, 1951.

⁴Casa Grande Dispatch, Jan. 4, 1951.

⁵Salter, 1951a, p. 1.

⁶Arizona Daily Star, Mar. 27, 1951.

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125 For this reason, 471 Papagos were found at work in the cotton fields. Some other farms were found to employ Papagos, but numbers could not be ascertained. At any rate, the 471 Desert People were 8.85% of all 5,319 pickers counted in this study. This may be accepted as a valid minimum proportion, since it does not include some farms where Papagos worked where the total number of pickers was obtained, but not the number of Papagos. A total of 536 Indians of all tribes were found on this same basis among 5,319 pickers counted in this study, or 10.1%. Correcting the proportion to allow for the unknown numbers of Papagos at work might mean 10% of the pickers actually were Desert People, with all Indians making up 12% or 13%.

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128 The validity of this guess may be checked. In Appendix I it was estimated Pima county hired 2,858 pickers, of which number 16% is 886 Papagos. The 121 Papagos in the ethnic sample in Pima county worked on 13 farms, which were 61.0% of Pima county farms hiring Desert People. If other farms hired proportionate numbers, 196 were hired on farms studied. These included 70% of the Pima county cotton planting, so all farms in the county planting cotton should have hired some 280 Papagos. This is within 6 of the 886 figure (10% of the estimated total of pickers) so the two estimates are very close, indicating accuracy.

NUMBER OF PAPAGO COTTON PICKERS, 1950

	Papago pickers (8.85%)	Papagos off-res. (x 2.3)	Papago pickers off-res. (10%)	Papago off-res. (10%)	Papago off-res. (10%)
Pickers needed per day to harvest Pinal-Pima county crop in 66 days	16,085	1,424	3,875	1,610	3,703
Average number of pickers hired per day, Oct.-Dec. (ASES data)	19,251	1,704	3,919	1,925	4,428
Average pickers hired per day Oct.-Dec. (Data of this study)	19,764	1,748	4,025	1,876	4,545
Peak number of pickers hired per day in any week. (ASES data)	22,140	1,859	4,496	2,214	5,092

On the basis of these figures it seems safe to say at least 1,700 Papagos picked cotton in 1950. And this meant some 2,750 Desert People lived in farm labor camps off their reservations. But the most likely estimate appears to be approximately 2,000 Papagos harvested cotton and about 4,500 in all lived in labor camps in Pima and Pinal counties in 1950.